

We claim:

- 1           1.     An catheter, comprising:  
2                 a hollow catheter body defining a proximal portion and a distal  
3 portion;  
4                 at least one internal component within the distal portion of the  
5 catheter body;  
6                 adhesive material located within the distal portion of the catheter  
7 body about the at least one internal component; and  
8                 a torque transfer device located within at least a portion of the  
9 adhesive material and adapted to engage at least a portion of the at least one  
10 internal component and transfer torque to the at least one internal  
11 component.
- 1           2.     A catheter as claimed in claim 1, wherein the catheter body  
2 comprises a proximal member and a distal member secured to one another.
- 1           3.     A catheter as claimed in claim 2, wherein the proximal member  
2 and distal member are secured to one another in a butt bond arrangement.
- 1           4.     A catheter as claimed in claim 3, further comprising:  
2                 a butt bond sleeve having a portion located within and bonded  
3 to the proximal member and a portion located within and bonded to the distal  
4 member, at least a portion of the adhesive material being located within the  
5 butt bond sleeve.
- 1           5.     A catheter as claimed in claim 4, wherein the torque transfer  
2 device is located within the butt bond sleeve.
- 1           6.     A catheter as claimed in claim 4, wherein the torque transfer  
2 device comprises at least one rib projecting inwardly from the butt bond  
3 sleeve.

1           7.     A catheter as claimed in claim 2, wherein the proximal member  
2     and distal member define respective proximal and distal portions and one of  
3     the proximal member distal portion and the distal member proximal portion  
4     overlaps the other, thereby defining an overlapping region.

1           8.     A catheter as claimed in claim 7, wherein the proximal and distal  
2     members are thermally bonded at the overlapping region.

1           9.     A catheter as claimed in claim 7, wherein the torque transfer  
2     device is located within the overlapping region.

1           10.    A catheter as claimed in claim 1, further comprising:  
2                a handle connected to the proximal portion of the catheter body.

1           11.    A catheter as claimed in claim 1, wherein the at least one  
2     internal component comprises a steering center support having at least one  
3     steering wire connected thereto.

1           12.    A catheter as claimed in claim 11, wherein the steering center  
2     support includes a relatively wide proximal portion, a tapered central portion  
3     and a relatively narrow distal portion.

1           13.    A catheter as claimed in claim 1, wherein the torque transfer  
2     device comprises a crimp sleeve disposed substantially around at least a  
3     portion of the at least one internal component and in contact with the  
4     adhesive material.

1           14.    A catheter as claimed in claim 13, wherein the crimp sleeve  
2     comprises a tubular sleeve.

1           15.    A catheter as claimed in claim 13, wherein the crimp sleeve  
2     comprises a substantially U-shaped sleeve.

1 16. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a substantially C-shaped sleeve.

1 17. A catheter as claimed in claim 13, wherein the crimp sleeve  
2 comprises a substantially G-shaped sleeve.

1 18. A catheter as claimed in claim 1, wherein the torque transfer  
2 device comprises a stiffener member being fixedly engaged to the at least  
3 one internal component and in contact with the adhesive material.

1 19. A catheter as claimed in claim 18, wherein the stiffener member  
2 comprises a generally flat member having a curved portion that is engaged to  
3 the at least one internal component and a distally projecting arm portion that  
4 projects into the adhesive material.

1 20. A catheter as claimed in claim 1, wherein the torque transfer  
2 device comprises a laterally extending portion of the at least one internal  
3 component, the laterally extending portion being disposed within the adhesive  
4 material.

1 21. A catheter as claimed in claim 20, wherein the at least one  
2 internal component comprises a steering center support having at least one  
3 steering wire connected thereto.

1 22. A catheter as claimed in claim 1, wherein the torque transfer  
2 comprises a sleeve having at least one inwardly extending rib member  
3 located in the distal portion of the catheter body.

1 23. A steering mechanism for use with a catheter, comprising:  
2 a steering center support defining a distal end; and  
3 at least one steering wire connected to the center support a  
4 sufficient distance from the distal end of the center support to provide a  
5 straight distal end when the steering wire is activated to bend the center  
6 support.

1 24. A catheter as claimed in claim 23, wherein the center support  
2 includes a relatively wide proximal portion, a tapered central portion and a  
3 relatively narrow distal portion, the steering wire being engaged to the  
4 relatively narrow distal portion.

1 25. A catheter as claimed in claim 23, wherein the steering wire is  
2 connected to the center support at a point located approximately one inch  
3 from the distal end of the center support.

1 26. A catheter as claimed in claim 23, wherein the center support  
2 includes a relatively wide proximal portion and a tapered distal portion, the  
3 steering wire being connected to the relatively wide proximal portion.

1 27. An apparatus for creating a lesion in body tissue, comprising:  
2 a catheter body having a distal assembly including a steering  
3 mechanism adapted to cause the distal assembly to contact body tissue  
4 along the length of the distal assembly; and  
5 at least two electrodes supported by the distal assembly and  
6 capable of creating generally elliptical lesions at least 2 cm long and 7 mm  
7 deep which are substantially continuous and uniform in depth when a source  
8 of radiofrequency energy simultaneously conveys radiofrequency energy to  
9 the at least two electrodes.

1 28. An apparatus as claimed in claim 27, wherein the steering  
2 mechanism is adapted to cause the distal assembly carrying electrodes to  
3 contact body tissue within the crevasse between the inferior vena cava and  
4 tricuspid annulus.

1 29. An apparatus as claimed in claim 27, wherein the steering  
2 mechanism is adapted to cause the distal assembly carrying electrodes to  
3 exert increased force against body tissue.

1 sub 30. A catheter, comprising:  
2 a hollow catheter body having a side wall and an aperture  
3 extending through a predetermined portion of the side wall;  
4 at least one internal component located within the catheter  
5 body; and  
6 adhesive material located within the hollow catheter body such  
7 that at least a portion of the adhesive material is in the vicinity of the side wall  
8 aperture, the adhesive material securing the hollow catheter body to the at  
9 least one internal component.

1 31. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a guide coil.

1 32. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a steering center support.

1 sub 33. A catheter as claimed in claim 30, wherein the at least one  
2 internal component comprises a sleeve covering at least a portion of the  
3 steering center support.

1 34. A catheter as claimed in claim 30, wherein the adhesive material  
2 extends around the periphery of the internal component.

1 *Sub D1* 35. A catheter as claimed in claim 30, wherein the catheter body  
2 defines a proximal end and a distal end and the side wall aperture is located  
3 substantially adjacent to the proximal end.

1 36. A catheter as claimed in claim 30, wherein the catheter body  
2 comprises a distal member and a proximal member secured to the distal  
3 member and the side wall aperture is located in the proximal member.

1 37. A catheter as claimed in claim 36, wherein the distal member  
2 includes at least one energy transmission element.

1 *Sub C1* 38. A catheter as claimed in claim 37, wherein the at least one  
2 energy transmission element comprises a tip energy transmission element,  
3 and the at least one internal component is connected to the tip energy  
4 transmission element.

1 39. A catheter as claimed in claim 30, further comprising:  
2 a torque transfer device located within at least a portion of the  
3 adhesive material and adapted to engage at least a portion of the at least one  
4 internal component and transfer torque to the at least one internal  
5 component.

1 40. A catheter, comprising:  
2 a hollow catheter body proximal member defining a distal  
3 region;  
4 a hollow catheter body distal member defining a proximal  
5 region, the distal and proximal members being respectively located such that  
6 one of the distal region of the proximal member and the proximal region of the  
7 distal member overlaps the other, thereby creating an overlapping region;  
8 a bond at the overlapping region securing the proximal member  
9 to the distal member; and  
10 at least one internal component located within at least the distal  
11 member.

1 ~~Sub D1~~ 41. A catheter as claimed in claim 40, wherein the bond comprises  
2 a thermal bond.

1 42. A catheter as claimed in claim 40, wherein the proximal member  
2 includes a side wall having an aperture formed therein.

1 ~~Sub 8~~ 43. A catheter as claimed in claim 42, further comprising:  
2 adhesive material connecting the proximal member to the at  
3 least one internal component, at least a portion of the adhesive material being  
4 in the vicinity of the side wall aperture.

1 44. A catheter as claimed in claim 40, wherein the at least one  
2 internal component comprises a guide coil.

1 45. A catheter as claimed in claim 40, wherein the at least one  
2 internal component comprises a steering center support.

1 ~~Sub 9~~ 46. A catheter as claimed in claim 45, wherein the at least one  
2 internal component comprises a sleeve covering at least a portion of the  
3 steering center support.

1 47. A catheter as claimed in claim 40, wherein the adhesive extends  
2 around the periphery of the internal component.

1 ~~Sub D1~~ 48. A catheter as claimed in claim 40, wherein the distal member  
2 includes at least one energy transmission element.

1 ~~Sub 10~~ 49. A catheter as claimed in claim 48, wherein the at least one  
2 energy transmission element comprises a tip energy transmission element,  
3 and the at least one internal component is connected to the tip energy  
4 transmission element.

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